

EAT 2 COMPETE



The Power of Protein

Protein has essential roles in the body and is a nutrient that is found in many animal and plant foods. Dietary protein has two possible fates - it can either be used in growth and repair (e.g. muscle, haemoglobin or antibodies) or burned for energy like carbohydrate and fat. About 15% of body weight is made up of protein, and most of this is found in skeletal muscle, which explains the importance of protein for rugby players.

The protein we eat is made up of 20 amino acids (building blocks); the process of digestion breaks down dietary protein into its amino acids, which are then absorbed and reassembled to make various kinds of human protein such as muscle, connective tissue and proteins for the immune system.



Protein activity in the body is in a constant state of change; when dietary protein is insufficient, muscle protein can be broken down to provide amino acids for essential body functions such as immune function. This explains why muscle mass is often lost during times of stress, disease or poor nutrition. On the other hand, when dietary protein is in plentiful supply, muscle mass can be maintained or increased.

Do rugby players need more protein?

In a word, yes. Strength and power is generated by muscles and strength athletes benefit from maximising muscle mass. However it is not as simple as just loading up on protein foods or supplements without considering the diet as a whole. Research has shown that even though protein requirements of rugby players are higher than those of in-active people, there is a limit to the amount of protein that the body can use to increase muscle strength - amounts above about 1.8g/kg body weight will generally be stored as fat. What is more important is the timing of protein intake, that is, when protein is eaten in relation to your training schedules.

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Timing of intake

Straight after hard training is when muscle protein synthesis is increased. Therefore it is important that the right raw materials are available to maximise this. However increasing protein intake at the expense of carbohydrate is a bad strategy for players in heavy training, because without sufficient carbohydrate, the muscle glycogen stores cannot be refuelled and energy available for the next exercise session will suffer. So the ideal recipe is to take both carbohydrate and protein straight after hard sessions, to maximise muscle conditioning and start refuelling. In addition to this plan, players should include protein at all other meal times to ensure a steady supply of amino acids to body cells.

How much do you need?

Multiply your body weight (in kilos) by 1.4. This will give you a guide to how many grams of protein you should aim for while in hard training.

For example:

Your weight = 75kg

Your daily protein goal = 105g

Look at the tables opposite to add up how you get on with your protein intake.

Ready Reckoner of protein foods

Food portions containing approximately 20g of animal protein

Animal source	Approx weight		Calories	Handy measure
Beef, lamb, pork	75g	3oz	115	2 medium slices
Turkey, chicken	75g	3oz	105	1 small fillet
Grilled liver	100g	4oz	190	2 tablespoons
Grilled fish	100g	4oz	95	1 small fillet
Grilled fish fingers	100g	4oz	200	6 fish fingers
Salmon in brine	100g	4oz	165	1 small tin
Tuna in brine	100g	4oz	100	1 small tin
Prawns	100g	4oz	105	2 tablespoons
Eggs	-	-	240	3 medium size
Cheddar cheese	75g	3oz	300	2 matchbox size pieces
Edam cheese	75g	3oz	230	2 matchbox size pieces
Cottage cheese	150g	3oz	150	4 tablespoons
Milk, all types	600ml		280	1 Pint
Yogurt, low fat	500g	20oz	450	4 cartons

Food portions containing approximately 10g of vegetable protein

Vegetable source	Approx weight		Calories	Handy measure
Nuts eg peanuts, cashews	50g	2oz	295	1 medium packet
Seeds eg sunflower, sesame	50g	2oz	290	4 tablespoons
Baked beans	200g	8oz	160	4 tablespoons
Kidney beans/split peas/lentils	150g	6oz	150	5 tablespoons cooked
Tofu (soya bean curd)	125g	5oz	90	1/2 packet
Soya milk	350ml		110	approx 2/3 pint
Peanut butter	50g	2oz	310	1 1/2 tablespoons
Bread	125g	5oz	270	4 large slices
Pasta eg spaghetti	250g	9oz	260	8 tablespoons cooked
Noodles	450g	16oz	280	12 tablespoons cooked
Rice	450g	16oz	555	12 tablespoons cooked
Potatoes	600g	21oz	480	8 medium
Cornflakes	125g	5oz	460	2 large bowls
Weetabix	100g	4oz	340	5 weetabix
Digestive biscuits	100g	4oz	700	9 biscuits

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Type of protein

There is much debate on what the best type of protein is. Whey protein and casein are the two major types of protein found in milk, and are often the ones used in protein supplements. All animal protein (from milk, eggs, meat, fish and poultry) provide the highest quality rating of food sources. However many plant and cereal foods (breads, cereals, peas, beans, pulses, nuts) also contain significant amounts of protein, but need to be combined to produce the same quality as animal sources. A food-based approach to meeting protein requirements should be the focus for all rugby players.

Protein supplements

These are popular with players trying to increase muscle size. Whereas it is accepted that players need more protein than the general public,

there is no evidence that supplements offer advantages over dietary sources of protein. The mistake players often make is to take a protein supplement at the expense of carbohydrate straight after training; what is needed at this time is both protein and carbohydrate. This should be taken as ordinary food and fluids.

Are very high protein intakes harmful?

There is not much evidence to show that high protein intakes are harmful, but there are concerns around the effects they can have on hydration and bone health. Very high protein intakes increase water and calcium loss due to the increased excretion of protein waste products through the kidneys. Often high protein intakes result in players not consuming enough carbohydrate foods to support their fuel needs for intensive training.



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